

# **EXHIBIT “A”**



Tel: (973) 887-4774  
Fax: (973) 887-4071  
[lwharton@whartoneengineering.com](mailto:lwharton@whartoneengineering.com)

4 Edgewood Court  
Parsippany, NJ 07054-3316

January 14, 2011

## REPORT

**Prystowsky v. Pride Mobility Products Corporation**

**Date of Loss: January 7, 2004  
Our File No. WE1786**

Prepared for:

Miranda, Sambursky, Slone, Sklarin & Verveniotis LLP  
The Esposito Building  
240 Mineola Boulevard  
Mineola, NY 11501

Attention: Neil L. Sambursky, Esq.



### ASSIGNMENT

In accordance with your request, the writer has conducted an investigation of the January 7, 2004 fire that occurred at the Prystowsky residence located at 4 Garden Place, Nutley, New Jersey. The fire scene was no longer available for inspection at the time the writer received the assignment. Examinations of evidence removed from the fire scene by others, exemplar items and items tested by others were conducted at FERASCO, LLC, 14E Easy Street, Bridgewater, New Jersey on May 25, 2010, May 26, 2010, and October 12, 2010. In addition, a metallurgical examination of selected evidence items was conducted on July 16, 2010 at Affiliated MRD, LLC, 777 New Durham Road, Edison, New Jersey. A selection of 40 photographs taken during these inspections is enclosed to depict the conditions observed. In addition, a listing of file material reviewed is provided at the end of this report.

### UNDERSTANDING

Dr. and Mrs. Milton Prystowsky and Carolyn Threadgill, a caregiver for Mrs. Prystowsky, were living at the Prystowsky home on the evening of January 6, 2004. Dr. and Mrs. Prystowsky retired to a bedroom at the rear of the first floor and Ms. Threadgill retired to a second floor bedroom. Dr. Prystowsky testified at his deposition that he awoke at approximately 3:00 a.m. on January 7, 2004 and heard a crackling sound. He proceeded to the area of the front entrance door and reported observing fire in the living room. Specifically, he testified that a lift chair and possibly the curtains behind it were burning. He exited through the front doorway and the fire was reported to authorities. Mrs. Prystowsky and Carolyn Threadgill died and Dr. Prystowsky was injured as a result of the fire.

Dr. Prystowsky testified that the lift chair had been purchased in approximately November/December, 2000 from Take Good Care (TGC Stores, Inc.). The chair apparently was delivered to the house early in 2001. According to Dr. Prystowsky the power cord for the lift chair had been plugged into a duplex receptacle mounted in the wall behind the chair. The chair had remained in the same position and remained plugged into the same receptacle outlet since the time of its delivery. Dr. Prystowsky recalled that a service technician had come to the house sometime in 2003 because the chair had stopped operating. The technician took the controller apart and "also from the controller to the motor".

Dr. Prystowsky further testified that a power strip (Relocatable Power Tap or "RPT") and the lift chair had been plugged into the duplex receptacle located on the wall behind the chair. He recalled several equipment items or medical devices that were generally located in the living room and in the vicinity of the lift chair. These items included a portable feeding unit, a suction device, a device he described as a "chest tapper" and an oxygen tank. He did not recall any medical device that could be described as an oxygen concentrator. He testified that all of the electrical medical devices were portable and that they were generally relocated whenever Mrs. Prystowsky was moved to a different location in the house. He stated that on the evening



prior to the fire these portable devices had been relocated to the first floor rear bedroom and that nothing was plugged into the RPT when he went to bed. He also stated that there was a lamp positioned on an end table near the chair. This lamp had been plugged into another wall receptacle but was turned off. Dr. Prystowsky testified that, as he witnessed the fire from the area of the front door, he could see approximately one-third to one-half of the RPT and that it was not on fire.

David Kircher investigated the fire at the Prystowsky home as a member of the Essex County Arson Task Force. Mr. Kircher determined the origin of the fire to be in the living room in the vicinity of the lift chair. His area of origin included the lift chair, the receptacle behind the lift chair, a device he believed to be an oxygen generator and other electrical remains that he could not identify. He concluded that the fire was accidental in nature. He did not determine the exact cause but believed that one of the appliances in his identified area of origin caused the fire. He also offered his opinion that the fire could have been caused by a power cord pinched under a chair or piece of furniture. Once he determined the fire to be accidental in nature he did not continue his scene investigation. He did not sort through the debris and did not observe the RPT that was later determined by others to be located within Mr. Kircher's area of origin.

### **ALLEGATIONS**

It has been alleged by others that the fire at the Prystowsky residence originated at a lift chair and that the lift chair was manufactured by Pride Mobility Products Corporation. Specifically, the fire is alleged to have resulted from an electrical "short circuit" that occurred in the energized lift chair power cord due to a design and manufacturing defect in the UL certified motor control box for a Dewert actuator incorporated into the lift chair. The details of plaintiff's theory of causation are included in the August 30, 2010 report prepared by Roger L. Boyell and the August 31, 2010 report prepared by Michael D. Leshner, P.E.

Plaintiff's experts allege that the short circuit occurred because the line cord for the motor control box had been mechanically deformed by having been pinched during assembly by the manufacturer. Specifically, the cord conductors were pinched and possibly twisted between the plastic housing of the motor control box and the edge of the transformer within the motor control box. According to the report submitted by Mr. Boyell, "The short circuit caused excessive current to flow through the line cord. The alleged excessive current overheated the power cord along its entire length and developed arcing which allegedly ignited combustibles such as the carpet or the upholstery cloth of the lift chair itself." Mr. Boyell and Mr. Leshner conducted testing in support of their theory. The testing is described in their reports. Analysis of their theory of fire causation and of details contained within the Boyell and Leshner reports are the primary subject of this report.



### **ALLEGATION: THE LIFT CHAIR LINE CORD WAS ENERGIZED**

A central aspect of plaintiff's theory is that the power cord for the lift chair was energized and was plugged into Position 1 of the RPT. Plaintiff's theory disregards Dr. Prystowsky's testimony at his deposition that the lift chair had been plugged into a duplex wall receptacle when it was delivered and set-up in the house and that it remained plugged into the same outlet from that time until the occurrence of the fire. He also testified that there was nothing plugged into the RPT at the time of the fire.

Three duplex wall receptacles had been collected from the scene of the fire. There was no evidence to indicate that anything had been plugged into two of these receptacles (Photos 1 and 2). Only one of the three receptacles exhibited evidence that anything had been plugged into it (Photo 3). A description written on the evidence bag containing the receptacle indicated that it had been mounted behind the end table in the living room. Dr. Prystowsky testified that the lift chair power cord was plugged into a receptacle located to the left of the chair while the end table was located to the right of the chair.

One of the outlets of the receptacle labeled "behind the end table" was empty and the other contained a plug and remnants of a two conductor, No. 18 AWG flexible cord. The remnants of the two conductors measured approximately 3 inches in length and exhibited no evidence of adverse electrical activity. The plug was withdrawn from the outlet and it was observed that the blades were "folded" and were not polarized (Photos 4 and 5). It should be noted that the plug blades associated with the exemplar lift chair power cord plugs provided by plaintiff were solid (not folded – Photo 6) and were polarized.

The above observations indicate that the plug inserted in the receptacle located behind the end table was not associated with the lift chair. It most likely was associated with a figurine lamp that had reportedly been located on the end table (Photo 7). The two conductor, No. 18 AWG cord for the lamp had been severed by adverse electrical activity and the plug end was not otherwise identified to be included in the evidence (Photos 8 and 9).

**There was no evidence to indicate that the lift chair had been plugged into any of the wall outlets in the Prystowsky living room.**

Plugs for two flexible cords were found to be inserted in the RPT recovered from the fire scene (Photos 10-12). The presence of two plugs inserted into the RPT contradicts Dr. Prystowsky's recollection at the time of his deposition that nothing had been plugged into the RPT at the time of the fire.

The plug engaged in Position 1 (at the end of the RPT closest to the "on/off" rocker switch) exhibited evidence of melted solder coating one of the plug blades (Photo 13; the



material coating the plug blade was identified via SEM analysis at Affiliated MRD). This plug blade had been fused to the RPT receptacle (Photo 14). The second plug blade exhibited evidence of pitting due to electrical arc activity (Photo 15). Mr. Boyell described this plug in his report. Specifically, he stated:

*"One metal pin of the two-prong plug remaining in the outlet strip was welded to its receptacle contact. This is an abnormal condition indicating possible overheating caused by a malfunction in whatever appliance was served by that plug."*

Later in his report he states:

*"Therefore, except for the lift chair and the heat-welded plug-and-socket connection, nothing else remains as a potential cause of the fire".*

*"Since no other appliances in the area of origin except the lift chair were drawing current, that welded connection could have been due to a malfunction in the lift chair itself."*

Mr. Leshner stated in his report:

*"The welded power plug blade found in cavity one of the power strip is consistent with an overload current in the cord attached to the plug".*

Examination of plug blades indicates that the plug inserted in Position 1 of the RPT was not part of a Pride lift chair power cord assembly. Specifically, the polarized plug blades removed from Position 1 were both stamped with the identifying letters "WD" (Photo 16). The polarized plug blades for all of the exemplar Pride lift chairs examined by plaintiff were stamped "GEM" (e.g., Photo 17).

**The reports of Mr. Boyell and Mr. Leshner both opine that an overload condition consistent with a potential ignition source is indicated for the appliance cord plugged into RPT Position 1. That appliance is not a Pride lift chair.**

The plug that was inserted in Position 2 of the RPT was connected to a three conductor flexible cord and included two flat blades and a ground pin (Photos 18 and 19). This plug was clearly not associated with the lift chair.

**There is no evidence that has been recovered from the fire scene that indicates the power cord for the involved lift chair was energized at the time of the fire.**



**ALLEGATION: THE MOTOR CONTROL BOX WAS DEFECTIVELY DESIGNED AND ASSEMBLED**

It is plaintiff's theory that the power cord conductors were pinched and possibly twisted during assembly of the motor control box. Specifically, the conductors were compressed between the plastic housing of the motor control box and the transformer. In addition, testing by plaintiff's experts indicated that the temperature of the transformer reached 130 degrees Fahrenheit when plugged in for one hour without load. They allege that the elevated temperature and the continuous compression of the line cord conductors caused the conductor insulation to creep over time and become thinner. Mr. Boyell alleges that these conditions resulted in a short circuit of the line cord conductors. Mr. Leshner alleges:

*"If the cord is twisted and a 'pinch' on the insulation eventually causes the gap between the conductors to become too thin, a short circuit with gradually increasing current can develop, heating the line cord well beyond the ignition temperature of the chair materials."*

It should be noted that the power cords for the exemplar lift chairs used in testing performed by Mr. Leshner and Mr. Boyell were rated by Underwriters Laboratories and/or the Canadian Standards Association for 105 degrees Centigrade. These listings indicate that the insulation is suitable for continuous operation of the power cord at a temperature up to 105 degrees Centigrade (221 degrees Fahrenheit). The power cord could therefore be operated continuously at a temperature more than 1-½ times that which was measured by the plaintiff's experts without degradation or risk of failure. An operating temperature of 130 degrees Fahrenheit would be well within the design specification for the power cord.

The indentations observed on the power cord within the exemplar control box (Photo 20) did not represent a hazard, danger or risk of failure of the control box. For example, the stress relief for the control box assembly deliberately imposes a compression on the power cord insulation to grip it firmly and prevent it from sliding in or out of the control box (Photos 21-24). Without this feature, an external mechanical stress applied to the power cord could cause movement of the conductors within the enclosure and apply stress to the conductor terminations. The stress could damage the terminations or other internal components and present a risk of electrical failure. The compression of the cord in a strain relief device is a standard manufacturing technique used to improve the safety of products. The power cord was listed by Underwriters Laboratories, as indicated by the UL file number printed on the cord. The motor control box was certified by Underwriters Laboratories as a UL recognized component, as indicated by the UL Recognized Component Mark on the motor control box label. The completed assembly of the power cord and motor control box complies with UL standards. That the UL certified design of the Dewert product was safe is further borne out by Pride's testing, including life cycle testing, bench testing and load testing, during which no fires occurred and no heated conditions were observed.



Plaintiff's experts have alleged that a "short circuit" between the two lift chair power cord conductors resulted in a sustained flow of 60 amps for 45 to 60 seconds (as assumed for purposes of their testing). The plaintiff's selected overload condition was sufficient to cause the No. 18 AWG power cord conductors to heat up and glow along their entire length and allegedly ignite combustible material which included the exemplar chair upholstery. They identified the ends of the lift chair power cord conductors that were located within the involved motor control box and that were exposed to the alleged short-circuit condition. These conductors were cleaned in an ultrasonic bath during the October 12, 2010 inspection at FERASCO and examined (Photo 25, depicting the cleaned conductors positioned on Mr. Boyell's photograph no. DSCN2990 taken on 7/15/10). **There was no melting of copper strands, the conductor strands were not brittle and there was no evidence of electrical heating or adverse electrical activity in the specified area where, according to plaintiff's experts, the alleged short circuit occurred.**

Mr. Boyell stated in his report:

*"When the short circuit occurred, a long cord would glow brightly like the element of a home toaster, igniting combustibles such as the upholstery cloth of the lift chair."*

Plaintiff's experts use contradictory language to describe the fault at the pinched conductors. They alternately describe it as a "high resistance" fault and a "short-circuit". They have assumed that the fault occurred within the control box and caused the 60 amp current to flow through the power cord conductors for 45 seconds or more.

Analysis of this allegation can be made using Ohm's Law, expressed as  $E=IR$ , where:

$E$  = voltage  
 $I$  = current  
 $R$  = resistance

Applying Ohm's Law with the known voltage (120 volts) and the known current (60 amps), the resistance of the circuit (the faulted or shorted power cord conductors) can be determined:

$$\begin{aligned}
 E &= IR \\
 R &= E/I = 120 \text{ volts}/60 \text{ amps} = 2 \text{ ohms}
 \end{aligned}$$

The 60 amps of current flowing across the circuit resistance produces heat, which is expressed as watts (W):

$$W = IE = I(IR) = I \times I \times R = 60 \times 60 \times 2 = 7,200 \text{ watts}$$



The resistance of No. 18 AWG stranded conductor is 7.95 ohms per 1,000 feet of conductor (Chapter 9, Table 8 of the National Electrical Code). Plaintiff's experts used approximately 5 to 6 feet of 2 conductor cord for each test. The ends of the cords were solidly connected using a wire nut. The total length of conductor was therefore approximately 10 to 12 feet.  $12 \times 7.95/1,000 = .095$  ohms (call 0.1 ohm). The resistance across the wire nut connection, if made properly, should be too small to effect the calculation. The resistance at the point of the fault must be:

$$R = 2 - 0.1 = 1.9 \text{ ohms}$$

The 60 amp current flowing across the 1.9 ohms at the point of the fault produces heat:

$$W = 60 \times 60 \times 1.9 = 6,840 \text{ watts}$$

Therefore, 95 percent ( $6,840/7,200$ ) of the energy is expended at the point of contact or at a thin, carbonized layer of insulation between the two conductors. (These calculations are approximate and do not take into account, for example, the increase in resistance of the conductor as it heats up. However, the calculations demonstrate that the amount of heat generated at the "high resistance connection" would be overwhelming. The high resistance contact would fail before the conductors would heat significantly) The diameter of the conductors is about 0.046 inches (Chapter 9, Table 8 of the National Electrical Code) and the insulation or point of contact through which the current must flow would be correspondingly small. One or two strands of conductor would make contact with each conductor. Each strand measures approximately 0.015 inches in diameter. The insulation layer would immediately be consumed and strands of conductor would come into contact, causing them to melt.

Page 776 of *The Ignition Handbook* (Babrauskas, 2003) discusses "Carbonization of insulation (arc tracking)":

*"Hagimoto et al. conducted laboratory studies simulating parallel-arching faults of electrical cords and cables. They identified that the process typically proceeds in a repetitive, but irregular fashion. The basic steps are illustrated in Figure 47:*

- *initial current flow occurs due to a carbonized layer*
- *the current flow increases and results in local arcing*
- *the arcing causes melting of metal and expulsion of the molten pieces*
- *once the molten pieces are expelled, current flow drops*
- *continued current flow through carbonized material eventually leads again to a sizeable current flow.*

*The process repeats indefinitely."*

Mr. Boyell references this section of *The Ignition Handbook* in his report. It directly refutes plaintiff's theory because no arcing occurred on the involved conductors at the alleged location of the fault.



The *Ignition Handbook* also discusses "Excessive pressure and creep of insulation" on page 790:

*"The breakdown of any insulator is dependent on the thickness. If the plastic insulation separating two conductors eventually gets thin enough that the breakdown voltage is lower than the actual voltage of the circuit, an arcing failure can occur. Matters are complicated by the fact that creep itself actually changes the electrical properties of the insulator, apart from the gross change in geometry. Perhaps more likely is that sustained creep would cause a direct contact by a single wire strand with the opposing conductor. Such a fault would quickly be relieved by melting out of the strand but, in the meantime, high temperatures would be presented to the wire insulation. This could cause sufficient carbonizing of the insulation that arc tracking could be initiated."*

The National Fire Protection Association Guide for Fire Explosion Investigations (NFPA 921) discusses a short circuit and branch circuit wiring in Chapter 8.11.9. This paragraph states:

*"A short circuit (i.e., lower resistance and high current) in wiring on a branch circuit has been thought to ignite insulation on the conductors and to allow fire to propagate. Normally the quick flash of a parting arc prior to the operation of the circuit protection cannot heat insulation enough to generate ignitable fumes, even though the temperature of the core of the arc may be several thousand degrees. If the over-current protection is defeated or defective, then a short circuit may become an overload and, as such, may become an ignition source."*

The above paragraph indicates that a "short circuit" may become an overload and an ignition source if the circuit protection fails. The overload would be the point of contact between two conductors and does not refer to the entire length of flexible conductor back to the power source. It also indicates that a short circuit results in a parting arc. A parting arc would cause localized melting of the stranded copper conductors. There is no evidence of any electrical abnormality on the conductors within the motor control box where plaintiff's experts alleged the short circuit occurred or at any point along the length of the conductors.

Any semiconductor bridge between these two conductors consisting, as theorized, of a thin layer of carbonized insulation would be immediately consumed by the generation of 6,840 watts across the gap. Metal-to-metal contact would be necessary to continue the flow of current. Arcing or direct contact between strands of the two conductors would cause melting of the strands. There is no evidence of melted copper on the conductors where the alleged short circuit occurred.

All references cited above state that arcing and/or melting of copper would result if the hypothetical fault presented by plaintiff's experts were to occur. Arcing at the fault would melt copper strands.



Exemplar lift chair power cord conductors and other conductors used in plaintiff's testing were examined during the October 12, 2010 inspection of evidence. In each case, they apparently created a "bolted" short circuit fault at the end of the power cord using a twist-on wire connector ("wire nut"). The wire nut connection was artificially created and bore no resemblance to the fault plaintiff's experts alleged to have occurred within the control box. Plaintiff's experts did not use a motor control box or a circuit breaker in their testing.

Each of the No. 18 AWG cords subjected to plaintiff's testing exhibited evidence of arcing in the form of localized melting of the copper conductors (e.g., Photos 26-28). The motor control box conductors identified by plaintiff's experts exhibited no evidence of electrical damage at the identified point of the fault or at any point along their lengths.

It is alleged that the power cord conductors were pinched at the edge of the transformer. The alleged fault that resulted would be likely to cause pitting/damage at the edge of the transformer. The edges of the transformer were carefully examined under magnification during the October 12, 2010 inspection and no evidence of electrical damage was found (Photos 29-31).

No evidence of adverse electrical activity was found at the location where the alleged short circuit occurred. Plaintiff's experts have stated that they cannot replicate the short circuit that caused the fire. They have not offered any peer reviewed scientific publication to indicate that an event similar to that which they have hypothesized is possible.

Mr. Leshner stated in his report that it would not be possible to duplicate the event that they have hypothesized. Plaintiff's experts therefore used special electrical equipment to impose a steady 60 amp current on the tested flexible cords. This is also an artificial situation with no reasonable relationship to field conditions as they existed at the time of the fire.

Mr. Leshner refers to Schneider/Square D Trip Curve No. 730-3 (copy attached) and states that a 20 ampere breaker under a 70 ampere load which does not trip for one minute is still within industry specifications. It should be noted that the circuit breaker panel photographed by others at the Prystowsky home was manufactured by Murray, not Square D. He is referencing a dashed line on the trip curve that represents the maximum trip time per NEMA AB 2-1980. The shaded area of the curve depicts the minimum and maximum design clearing times for specified molded case circuit breakers. As designed and manufactured by Square D, the breakers are expected to trip in approximately 3 to 12 seconds when a current equal to three times the circuit breaker rating (60 amps) is applied.

There are two standards that apply to the maximum trip times for a 20 ampere molded case circuit breaker rated for 250 volts or less. One of these is UL 489 which requires a maximum trip time of 1 hour at 135 percent of rated load and 12 minutes at 200 percent of rated load. The shaded area (design criteria) of the Square D trip curve cited by Mr. Leshner requires



the circuit breaker to trip within approximately 5 minutes for a 135 percent overload and less than 40 seconds for a 200 percent overload. The other standard is NEMA AB 4-2009 (which replaced NEMA AB 2-1980) which requires a maximum trip time of 50 seconds at 300 percent of rated load. The shaded area of the referenced Square D curve requires a maximum trip time of approximately 12 seconds at 300 percent rated load (60 amps). While the cited industry standards would allow the longer trip times, manufacturers design their circuit breakers to trip much faster under overload conditions, as indicated by the shaded area of the trip curve.

**Plaintiff's theory assumes the involved circuit breaker from the Prystowsky home was performing substantially outside the manufacturer's specifications at the time of the fire. This is an assumption they cannot verify.**

#### **POTENTIAL IGNITION SOURCES HAVE NOT BEEN ELIMINATED**

The evidence in the identified area of origin was extensively fire damaged and it is known that the room flashed over. Numerous potential ignition sources have not been eliminated by plaintiff's experts:

The most significant of these is the line cord and unknown appliance that was plugged into Position 1 of the RPT. Both Mr. Boyell and Mr. Leshner identify this cord/appliance as a potential source of electrical overload and Mr. Boyell specifically identifies the "heat-welded plug-and-socket connection" a potential cause of the fire. The appliance that was plugged into Position 1 was not a Pride lift chair.

A second unknown appliance was connected to RPT Position 2. The plug for this appliance contained 3 blades and was therefore not associated with the lift chair. The cord for this appliance was energized and the status of the appliance ("on" or "off") as well as its identify are not known. This appliance and its power cord cannot be eliminated as potential ignition sources.

The arc severed cord for the figurine lamp proves that the lamp cord was energized at the time of the fire. The electrical arcing that severed the cord represents a credible ignition source.

Mr. Boyell refers to "a jumble of electrical cords, all melted to the carpet" in his report. These cords were within the identified area of origin. Numerous fragments of stranded cords were included in the evidence and examined (Photo 32). These fragments varied in number of strands, diameter, twist, etc. It is clear that the effects of the fire, suppression and overhaul activities resulted in cords becoming damaged, broken and scattered. It is not credible to assume that all of these fragments were recovered. Factors such as age, conditions of use and inadvertent abuse are factors that are known to contribute to arcing failures in flexible cords. An arcing fault in any energized cord would represent a



potential ignition source. Without the opportunity to examine the complete lengths of all flexible cords in the area of origin, an arcing fault within one of these cords cannot be eliminated as an ignition source for the fire.

Mr. Boyell and Mr. Leshner gratuitously dismiss all of the electrical devices in the room of origin except the lift chair and the device associated with the welded plug connection in the RPT because all other devices were turned off or not operating. That conclusion is based upon the selected portions of Dr. Prystowsky's testimony upon which they choose to rely and that the appliances allegedly had "on/off" switches.

Plaintiff's experts determined that the oxygen concentrator (Photos 33-35) was not the same model as the Invacare unit that was subject to a recall and "eliminated" it as a potential source for the fire. Even if the oxygen concentrator was not subject to a recall as plaintiff alleges, it could still be a potential cause for the fire. For instance, it is not known whether any components of this device were missing. Most of the power cord was missing or could not be identified. A power cord was embedded in the congealed plastic at the base of the oxygen concentrator (Images 36 and 37 – X-rays taken at FERASCO). The stranding of the conductors of this cord did not match that of the remaining portion of the oxygen concentrator power cord. The oxygen concentrator cannot be eliminated as a potential ignition source.

The suction machine, which was subject to a recall, was also extensively damaged by the fire (Photos 38-40) and, for the same reasons given for the oxygen concentrator, cannot be eliminated as a potential ignition source. A portion of the power cord and the plug for the appliance were not recovered or have not been identified and cannot be eliminated as a potential cause of the fire.

The device described by Dr. Prystowsky as a "chest tapper" was not identified by investigators at the scene or by subsequent bench examinations of the evidence. It is not known whether remnants of conductors or components from this device were present in the collected evidence or had been consumed, scattered or lost during the fire or subsequent fire department operations. This device cannot be eliminated as a cause for the fire.

## **SCIENTIFIC METHOD**

Chapter 4 of NFPA 921 recommends the use of the Scientific Method to determine the cause of a fire. Using the scientific method, the investigator is to collect data, analyze the data, develop a hypothesis and test the hypothesis. The hypothesis can be tested using physical experiments or deductive reasoning, and can rely upon the research of others. As explained in Chapter 4:



*"The investigator does not have a provable hypothesis unless it can stand the test of careful and serious challenge."*

*"If the hypothesis cannot be supported, it should be discarded and alternated hypotheses should be developed and tested."*

*"The testing process needs to be continued until all feasible hypotheses have been tested and one is determined to be uniquely consistent with the facts, and with the principles of science."*

*"If no hypothesis can withstand an examination by deductive reasoning, the issue should be considered undetermined."*

The conditions and circumstances of plaintiff's testing were not consistent with the known facts in the case or with scientific principles. They did not use a motor control box, transformer or circuit breaker in their testing. They used a bolted short circuit fault (by splicing the conductors of the power cord together using a wire nut) and had to use special equipment to generate their "fault current". There is no reasonable correlation between their testing and conditions known to exist at the time of the fire. The lack of electrical activity at the point at which they claim the fault occurred on the motor control box power cord directly contradicts published scientific principles and test results. The scientific method indicates that the cause of the fire should be considered to be undetermined.

### **PROCESS OF ELIMINATION**

Chapter 18.2 of NFPA 921 describes a method of determining the cause of a fire that is termed "Process of Elimination". It states:

*"Any determination of fire cause should be based on evidence rather than on the absence of evidence; however, when the origin of a fire is clearly defined, it may be possible to make a credible determination regarding the cause of the fire, even when there is no physical evidence of the ignition source identified after the fire. This finding may be accomplished with the testing of alternative hypotheses involving other potential ignition sources, provided that the conclusion regarding the remaining ignition source is consistent with all known facts (See Chapter 4, Basic Methodology). A clearly defined origin exists when it is known conclusively to the exclusion of all other potential origins. The process of elimination is not to be used indiscriminately. When the origin is not clearly defined, this process is inappropriate and cannot be used. Some of the conditions and circumstances that prevent the origin from being clearly defined include the degree of extent of damage (such as those conditions found in fully developed compartment fires), or the adverse effects of fire suppression activities (such as fire scenes where excessive overhaul has occurred). In conditions and circumstances such as these*



*examples, the origin is not likely to be clearly defined. As such, the use of this methodology is inappropriate. The positive identification of the origin is the most significant factor in determining whether the process of elimination is appropriate. If the origin cannot be positively identified to the exclusion of all other potential origins, no inferences regarding the ignition source should be made.”*

The area of fire origin included several electrical items and numerous flexible cords, some of which have not been identified in the examined artifacts. Plaintiff's have presented no direct physical evidence to support their theory of fire causation. Physical evidence that they have offered is contradictory to their theory of causation. There are numerous potential sources of ignition for the fire at the Prystowsky residence that plaintiff's experts have not eliminated. The use of the process of elimination is not appropriate for the investigation of the fire at the Prystowski residence.

#### **SUMMARY OF OPINIONS**

It is the writer's opinion that the cause of the fire at the Prystowsky residence cannot be determined; however, there is no evidence that the lift chair was involved in fire causation or that the fire resulted from any impropriety or lack of provision on the part of Pride Mobility Products Corporation.

Plaintiff's have presented no direct physical evidence to support their theory of fire causation. There were numerous electrical cords and devices in the identified area of origin that represented potential ignition sources. While plaintiff's experts have alleged the lift chair caused the fire they have failed to eliminate multiple potential ignition sources, one of which they themselves identified (the power cord and unknown appliance connected to Position one of the RPT). The process of elimination identified in NFPA 921 mandates that no inference regarding the ignition source should be made.

Plaintiff's experts' theory of fire causation is not consistent with the known facts and does not support the lift chair as the cause of the fire. The area of the alleged fault on the power cord conductors within the motor control box was specifically identified by plaintiff's experts. The identified area was cleaned and examined. No evidence of adverse electrical activity was present. It is not possible to create a fault that behaves in the manner they allege and that does not melt strands of copper conductor, as has been demonstrated above in this report. The testing they conducted relied upon the artificial generation of what they described as fault current. They did not use a control transformer, a motor control box or a circuit breaker in their testing. They could not duplicate the alleged fire causation process. The results of plaintiff's experts' testing is inconsistent with the evidence recovered. There is no peer reviewed literature to substantiate the validity of their theoretical ignition process.



Plaintiff's experts have not presented a scientifically credible theory of fire causation and have not eliminated all other potential causes for the fire. They have presented no physical evidence of an electrical fault associated with any cord or component of the lift chair. Any use of the process of elimination is inappropriate and no inference regarding the ignition source should be made. Their investigation into the cause of the fire does not follow the scientific method.

### CONCLUSION

It is the writer's concluding opinion that the cause of the subject January 7, 2004 fire at the Prystowsky home is undetermined. It has not been proven that the lift chair power cord was plugged in to a power source at the time of the fire. No physical evidence of a fault or failure associated with any cord, conductor or component of the lift chair has been identified. Numerous potential ignition sources, unrelated to the lift chair, cannot be eliminated.

There is no evidence that the lift chair was involved in fire causation or that the fire resulted from any impropriety or lack of provision on the part of Pride Mobility Products Corporation.

This report is based upon the file material and factual information available at the time of preparation. Opinions are based upon the writer's education, experience and knowledge of codes and standards, including the National Electrical Code (NFPA 70) and the Guide for Fire and Explosion Investigations (NFPA 921). All opinions are expressed within a reasonable degree of engineering certainty. The author reserves the right to revise this report should additional information become available at a future date.

A handwritten signature in black ink, appearing to read "Larry A. Wharton".

Larry A Wharton, P.E.  
Engineering Consultant



FILE MATERIAL REVIEWED

The file materials reviewed include, but are not necessarily limited to:

Deposition transcripts (with exhibits) of Michael Zablocky, Christopher Lohan, David Kircher, David Wilson, Frederick Kiwak, Jeffrey Cartwright, Dr. Milton Prystowsky, Ronald Clines, Steven Deutsch, Sandra Jonelunas, Glenn Jonelunas and James Patrick Mulhern

Expert reports submitted by Roger L. Boyell, Michael D. Leshner, P.E., David Kircher, C.F.I., and Thomas Schneiders, together with all supporting CDs provided in support of the reports.

Plaintiff's Answers to Defendant Invacare's Supplemental Demand for Documents

Plaintiff's Answers to Defendant Invacare's Wrongful Death Interrogatories

Plaintiff's Answer to Pride Mobility Products Corporation's First Request for Production of Documents

Plaintiff's Answer to Pride Mobility Products Corporation's First Set of Interrogatories

Plaintiff's Initial Disclosures Pursuant to Fed. R. Civ. P. 26(a)(1)

Pride Mobility Products Corp's Response to Plaintiff's Request for Admissions

Defendant Pride Mobility Products Corp's Answers and Objections to Plaintiff's First Request for Production of Documents

Defendant Pride Mobility Products Corp's Answers and Objections to Plaintiff's First Set of Interrogatories

Plaintiff's response to Pride Mobility's first request for admissions

Plaintiff's Answers to Defendant ADT Security Services, Inc.'s Second Set of Requests for Production of Documents



**Plaintiff's Responses to Defendant ADT Security Services, Inc.'s First Request for Production of Documents**

**Plaintiff's Answers to Defendant ADT Security Services, Inc.'s First Set of Interrogatories**

**Plaintiff's Answers to Defendant ADT Security Services, Inc.'s Second Set of Interrogatories**

**Plaintiff's Answers to Defendant Invacare's Supplemental Demand for Documents**

**Documents produced by Pride Mobility Products Corporation**

**Numerous CDs containing photographs produced by plaintiff**

**X-ray images and microscope photographs taken at artifact examinations**

**Numerous photographs produced by plaintiff**

**Easy Go Vac Aspirator Product Recall Notice**